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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,182	12/16/2003	Yoshiaki Maruyama	1324.68802	5492

7590 06/29/2005
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EXAMINER

CALEY, MICHAEL H

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/737,182

Applicant(s)

MARUYAMA ET AL.

Examiner

Michael H. Caley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12162003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagae et al. (U.S. Patent No. 6,078,379 “Nagae”).

Regarding claim 1, Nagae discloses a substrate for a liquid crystal display having:

a sealing material forming region (Figure 17, region of elements 23 or 24)

provided in a peripheral portion of the base substrate (Figure 18 element 22); and

a cell gap control layer (Figure 17 element 23) formed inside the sealing material forming region and controlling a cell gap between the base substrate and an opposite substrate (Figure 18 element 21) provided opposite to the base substrate.

Regarding claim 2, Nagae discloses the cell gap control layer as formed of a photosensitive resin (Column 30 lines 26-35).

Regarding claim 3, Nagae discloses a liquid crystal as sealed between the substrates (Figure 18 element 6).

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Regarding claim 4, Nagae discloses an adhesive which is spread on either of the substrates and which secures the pair of substrates to each other (Figures 17 and 18 element 24 or seal material inside 23; Column 31 lines 15-22).

Regarding claim 5, Nagae discloses a pillar spacer for maintaining the cell gap (Figure 17 seal material inside 23; Column 31 lines 15-22).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tagusa et al. (U.S. Patent No. 5,859,683 "Tagusa") in view of Hirakata et al. (U.S. Patent No. 5,982,471 "Hirakata").

Regarding claims 1 and 3, Tagusa discloses a substrate for a liquid crystal display having:

a cell gap control layer (Figure 2 element 38) inside the liquid crystal region (Column 6 lines 52-58) and controlling a cell gap between the base substrate and an opposite substrate provided opposite to the base substrate (abstract).

Tagusa fails to disclose a sealing material forming region provided in a peripheral portion of the base substrate and a cell gap control layer as formed inside the sealing material forming

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region. Hirakata, however, teaches a seal (and sealing material forming region) as provided in a peripheral portion of the base substrate, surrounding the liquid crystal region (Column 11 lines 4-14). Tagusa discloses the cell gap control layer as formed inside the liquid crystal region.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed a seal material and a sealing material forming region at a peripheral portion of the base substrate disclosed by Tagusa and to have provided the cell gap control layer inside the region. One would have been motivated to provide a sealing material and region as proposed to benefit from commonly known advantages of a sealing material such as to prevent leakage of liquid crystal and to prevent impurities from entering the liquid crystal region.

Regarding claim 6, Tagusa fails to disclose a spherical spacer for maintaining the cell gap. Hirakata, however, teaches spherical spacers as a means of maintaining cell gap (Column 11 lines 23-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied spherical spacers to the liquid crystal display to maintain cell gap in the display device disclosed by Tagusa. One would have been motivated to provide such spacers to ensure a uniform cell gap across the display to avoid display irregularities due to an uneven cell gap.

Regarding claim 7, Tagusa fails to explicitly disclose the cell gap control layer as having a thickness greater than the cell gap. Tagusa discloses the cell gap as 4.5 microns (Column 14

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lines 50-55). Tagusa discloses the cell gap control layer as having a thickness in the range of about 1.5 microns to 5 microns (Column 6 lines 40-42, Column 16 lines 60-64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the cell gap control layer to have a thickness greater than the cell gap. Tagusa teaches the optimization range of the cell gap control layer as including thicknesses greater than the disclosed cell gap up to 5 microns. One would have been motivated to adjust the display device disclosed by Tagusa within the taught optimization range to benefit from the expected results of the selected thickness, such as an increased transmittance and improved viewing angle characteristic (Column 6 lines 35-51).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

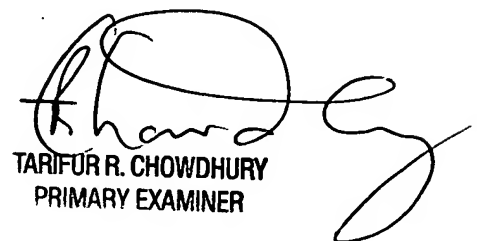
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael H. Caley
June 14, 2005

mhc



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER